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Sequence Listing was accepted.
If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).
Reviewer: Anne Corrigan
Timestamp: [year=2008; month=11; day=7; hr=10; min=17; sec=31; ms=149;]
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Sequence Listing was accepted.
If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).
Reviewer: Keisha Douglas
Timestamp: [year=2008; month=10; day=10; hr=15; min=28; sec=11; ms=868;
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Validated By CRFValidator v 1.0.3

Application No: 10585077 Version No: 2.0

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Finished: 2008-10-07 15:13:25.344
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No. of SeqIDs Defined: 32
Actual SeqID Count: 32

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SEQUENCE LISTING

<110> CHRISTENSEN, GEIR
ANDERSSON, KRISTIN BREVIK

<120> NON-HUMAN MAMMAL COMPRISING A MODIFIED SERCA2 GENE AND METHODS, CELLS, GENES, AND VECTORS THEREOF

<130> 3657-1037

<140> 10585077
<141> 2008-10-07

<150> PCT/NO04/000397
<151> 2004-12-22

<150> 60/533,740
<151> 2003-12-30

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<170> PatentIn Ver. 3.3

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nucleotide construct

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cttccagggt caaggaaggc acgggggagg ggcaaacaac agatggctgg caactagaag 480
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tgtctgataa gcggtccgcc cacacccaac cggccacaag tcatgaaatc caaaaaagcg 720
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caggcctggg tggagaggct ttttgcttcc tcttgcaaaa ccacactgct cgacattggg 660
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<213> Artificial Sequence

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<210> 5
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<400> 5
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<210> 6
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<220>
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aagttgaata accggaaatg gttt 24

<210> 11
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tgttataagc aatccccaga aatg 24

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primer

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Leu Glu Lys Tyr Gly Pro Asn Glu Leu Pro Ala Glu Glu Gly Lys Ser
35 40 45

Leu Trp Glu Leu Val Val Glu Gln Phe Glu Asp Leu Leu Val Arg Ile
50 55 60

Leu Leu Leu Ala Ala Cys Ile Ser Phe Val Leu Ala Trp Phe Glu Glu
65 70 75 80

Gly Glu Glu Thr Val Thr Ala Phe Val Glu Pro Phe Val Ile Leu Leu
85 90 95

Ile Leu Ile Ala Asn Ala Ile Val Gly Val Trp Gln Glu Arg Asn Ala
100 105 110

Glu Asn Ala Ile Glu Ala Leu Lys Glu Tyr Glu Pro Glu Met Gly Lys
115 120 125

Val Tyr Arg Ala Asp Arg Lys Ser Val Gln Arg Ile Lys Ala Arg Asp
130 135 140

Ile Val Pro Gly Asp Ile Val Glu Val Ala Val Gly Asp Lys Val Pro
145 150 155 160

Ala Asp Ile Arg Ile Leu Ser Ile Lys Ser Thr Thr Leu Arg Val Asp
165 170 175

Gln Ser Ile Leu Thr Gly Glu Ser Val Ser Val Ile Lys His Thr Asp
180 185 190

Pro Val Pro Asp Pro Arg Ala Val Asn Gln Asp Lys Lys Asn Met Leu
195 200 205

Phe Ser Gly Thr Asn Ile Ala Ala Gly Lys Ala Val Gly Ile Val Ala
210 215 220

Thr Thr Gly Val Ser Thr Glu Ile Gly Lys Ile Arg Asp Gln Met Ala
225 230 235 240

Ala Thr Glu Gln Asp Lys Thr Pro Leu Gln Gln Lys Leu Asp Glu Phe

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Gly Glu Gln Leu Ser Lys Val Ile Ser Leu Ile Cys Val Ala Val Trp
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Phe Arg Gly Ala Ile Tyr Tyr Phe Lys Ile Ala Val Ala Leu Ala Val
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Ala Ala Ile Pro Glu Gly Leu Pro Ala Val Ile Thr Thr Cys Leu Ala
305                 310                 315                 320

Leu Gly Thr Arg Arg Met Ala Lys Lys Asn Ala Ile Val Arg Ser Leu
                325                 330                 335

Pro Ser Val Glu Thr Leu Gly Cys Thr Ser Val Ile Cys Ser Asp Lys
            340                 345                 350

Thr Gly Thr Leu Thr Thr Asn Gln Met Ser Val Cys Lys Met Phe Ile
        355                 360                 365

Ile Asp Lys Val Asp Gly Asp Val Cys Ser Leu Asn Glu Phe Ser Ile
    370                 375                 380

Thr Gly Ser Thr Tyr Ala Pro Glu Gly Glu Val Leu Lys Asn Asp Lys
385                 390                 395                 400

Pro Val Arg Ala Gly Gln Tyr Asp Gly Leu Val Glu Leu Ala Thr Ile
                405                 410                 415

Cys Ala Leu Cys Asn Asp Ser Ser Leu Asp Phe Asn Glu Thr Lys Gly
            420                 425                 430

Val Tyr Glu Lys Val Gly Glu Ala Thr Glu Thr Ala Leu Thr Thr Leu
        435                 440                 445

Val Glu Lys Met Asn Val Phe Asn Thr Glu Val Arg Ser Leu Ser Lys
    450                 455                 460

Val Glu Arg Ala Asn Ala Cys Asn Ser Val Ile Arg Gln Leu Met Lys
465                 470                 475                 480

Lys Glu Phe Thr Leu Glu Phe Ser Arg Asp Arg Lys Ser Met Ser Val
                485                 490                 495

Tyr Cys Ser Pro Ala Lys Ser Ser Arg Ala Ala Val Gly Asn Lys Met
            500                 505                 510

Phe Val Lys Gly Ala Pro Glu Gly Val Ile Asp Arg Cys Asn Tyr Val
        515                 520                 525

Arg Val Gly Thr Thr Arg Val Pro Leu Thr Gly Pro Val Lys Glu Lys
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Ile Met Ser Val Ile Lys Glu Trp Gly Thr Gly Arg Asp Thr Leu Arg
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Cys Leu Ala Leu Ala Thr Arg Asp Thr Pro Pro Lys Arg Glu Glu Met
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Phe Val Gly Val Val Gly Met Leu Asp Pro Pro Arg Lys Glu Val Thr
        595                 600                 605

Gly Ser Ile Gln Leu Cys Arg Asp Ala Gly Ile Arg Val Ile Met Ile
    610                 615                 620

Thr Gly Asp Asn Lys Gly Thr Ala Ile Ala Ile Cys Arg Arg Ile Gly
625                 630                 635                 640

Ile Phe Ser Glu Asn Glu Glu Val Thr Asp Arg Ala Tyr Thr Gly Arg
                645                 650                 655

Glu Phe Asp Asp Leu Pro Leu Ala Glu Gln Arg Glu Ala Cys Arg Arg
            660                 665                 670

Ala Cys Cys Phe Ala Arg Val Glu Pro Ser His Lys Ser Lys Ile Val
        675                 680                 685

Glu Tyr Leu Gln Ser Tyr Asp Glu Ile Thr Ala Met Thr Gly Asp Gly
    690                 695                 700

Val Asn Asp Ala Pro Ala Leu Lys Lys Ala Glu Ile Gly Ile Ala Met
705                 710                 715                 720

Gly Ser Gly Thr Ala Val Ala Lys Thr Ala Ser Glu Met Val Leu Ala
                725                 730                 735

Asp Asp Asn Phe Ser Thr Ile Val Ala Ala Val Glu Glu Gly Arg Ala
            740                 745                 750

Ile Tyr Asn Asn Met Lys Gln Phe Ile Arg Tyr Leu Ile Ser Ser Asn
        755                 760                 765

Val Gly Glu Val Val Cys Ile Phe Leu Thr Ala Ala Leu Gly Leu Pro
    770                 775                 780

Glu Ala Leu Ile Pro Val Gln Leu Leu Trp Val Asn Leu Val Thr Asp
785                 790                 795                 800

Gly Leu Pro Ala Thr Ala Leu Gly Phe Asn Pro Pro Asp Leu Asp Ile
                805                 810                 815

Met Asp Arg Pro Pro Arg Ser Pro Lys Glu Pro Leu Ile Ser Gly Trp
            820                 825                 830

Leu Phe Phe Arg Tyr Met Ala Ile Gly Gly Tyr Val Gly Ala Ala Thr
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Val Gly Ala Ala Ala Trp Trp Phe Leu Tyr Ala Glu Asp Gly Pro His
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Val Ser Tyr His Gln Leu Thr His Phe Met Gln Cys Thr Glu His Asn
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Pro Glu Phe Asp Gly Leu Asp Cys Glu Val Phe Glu Ala Pro Glu Pro
                885                 890                 895

Met Thr Met Ala Leu Ser Val Leu Val Thr Ile Glu Met Cys Asn Ala
            900                 905                 910

Leu Asn Ser Leu Ser Glu Asn Gln Ser Leu Leu Arg Met Pro Pro Trp
        915                 920                 925

Val Asn Ile Trp Leu Leu Gly Ser Ile Cys Leu Ser Met Ser Leu His
    930                 935                 940

Phe Leu Ile Leu Tyr Val Asp Pro Leu Pro Met Ile Phe Lys Leu Arg
945                 950                 955                 960

Ala Leu Asp Phe Thr Gln Trp Leu Met Val Leu Lys Ile Ser Leu Pro
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Val Ile Gly Leu Asp Glu Leu Leu Lys Phe Ile Ala Arg Asn Tyr Leu
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<213> Mus musculus

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Lys Glu Arg Trp Gly Ser Asn Glu Leu Pro Ala Glu Glu Gly Lys Thr
         35                  40                  45

Leu Leu Glu Leu Val Ile Glu Gln Phe Glu Asp Leu Leu Val Arg Ile
     50                  55                  60

Leu Leu Leu Ala Ala Cys Ile Ser Phe Val Leu Ala Trp Phe Glu Glu
 65                  70                  75                  80

Gly Glu Glu Thr Ile Thr Ala Phe Val Glu Pro Phe Val Ile Leu Leu
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Ile Leu Val Ala Asn Ala Ile Val Gly Val Trp Gln Glu Arg Asn Ala
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Val Tyr Arg Gln Asp Arg Lys Ser Val Gln Arg Ile Lys Ala Lys Asp
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Ala Asp Ile Arg Leu Thr Ser Ile Lys Ser Thr Thr Leu Arg Val Asp
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Gln Ser Ile Leu Thr Gly Glu Ser Val Ser Val Ile Lys His Thr Asp
            180                 185                 190

Pro Val Pro Asp Pro Arg Ala Val Asn Gln Asp Lys Lys Asn Met Leu
        195                 200                 205

Phe Ser Gly Thr Asn Ile Ala Ala Gly Lys Ala Met Gly Val Val Val
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Ala Thr Gly Val Asn Thr Glu Ile Gly Lys Ile Arg Asp Glu Met Val
225                 230                 235                 240

Ala Thr Glu Gln Glu Arg Thr Pro Leu Gln Gln Lys Leu Asp Glu Phe
                245                 250                 255

Gly Glu Gln Leu Ser Lys Val Ile Ser Leu Ile Cys Ile Ala Val Trp
            260                 265                 270

Ile Ile Asn Ile Gly His Phe Asn Asp Pro Val His Gly Gly Ser Trp
        275                 280                 285

Ile Arg Gly Ala Ile Tyr Tyr Phe Lys Ile Ala Val Ala Leu Ala Val
    290                 295                 300

Ala Ala Ile Pro Glu Gly Leu Pro Ala Val Ile Thr Thr Cys Leu Ala
305                 310                 315                 320

Leu Gly Thr Arg Arg Met Ala Lys Lys Asn Ala Ile Val Arg Ser Leu
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Pro Ser Val Glu Thr Leu Gly Cys Thr Ser Val Ile Cys Ser Asp Lys
            340                 345                 350

Thr Gly Thr Leu Thr Thr
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SEQUENCE LISTING

<110> CHRISTENSEN, GEIR
ANDERSSON, KRISTIN BREVIK

<120> NON-HUMAN MAMMAL COMPRISING A MODIFIED SERCA2 GENE AND METHODS, CELLS, GENES, AND VECTORS THEREOF

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<140> 10585077
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<160> 32

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nucleotide construct

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tgtctgataa gcggtccgcc cacacccaac cggccacaag tcatgaaatc caaaaaagcg 720
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caggcctggg tggagaggct ttttgcttcc tcttgcaaaa ccacactgct cgacattggg 660
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primer

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primer

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<213> Mus musculus

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1 5 10 15

Gly Val Ser Glu Thr Thr Gly Leu Thr Pro Asp Gln Val Lys Arg His
20 25 30

Leu Glu Lys Tyr Gly Pro Asn Glu Leu Pro Ala Glu Glu Gly Lys Ser
35 40 45

Leu Trp Glu Leu Val Val Glu Gln Phe Glu Asp Leu Leu Val Arg Ile
50 55 60

Leu Leu Leu Ala Ala Cys Ile Ser Phe Val Leu Ala Trp Phe Glu Glu
65 70 75 80

Gly Glu Glu Thr Val Thr Ala Phe Val Glu Pro Phe Val Ile Leu Leu
85 90 95

Ile Leu Ile Ala Asn Ala Ile Val Gly Val Trp Gln Glu Arg Asn Ala
100 105 110

Glu Asn Ala Ile Glu Ala Leu Lys Glu Tyr Glu Pro Glu Met Gly Lys
115 120 125

Val Tyr Arg Ala Asp Arg Lys Ser Val Gln Arg Ile Lys Ala Arg Asp
130 135 140

Ile Val Pro Gly Asp Ile Val Glu Val Ala Val Gly Asp Lys Val Pro
145 150 155 160

Ala Asp Ile Arg Ile Leu Ser Ile Lys Ser Thr Thr Leu Arg Val Asp
165 170 175

Gln Ser Ile Leu Thr Gly Glu Ser Val Ser Val Ile Lys His Thr Asp
180 185 190

Pro Val Pro Asp Pro Arg Ala Val Asn Gln Asp Lys Lys Asn Met Leu
195 200 205

Phe Ser Gly Thr Asn Ile Ala Ala Gly Lys Ala Val Gly Ile Val Ala
210 215 220

Thr Thr Gly Val Ser Thr Glu Ile Gly Lys Ile Arg Asp Gln Met Ala
225 230 235 240

Ala Thr Glu Gln Asp Lys Thr Pro Leu Gln Gln Lys Leu Asp Glu Phe

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                245                 250                 255

Gly Glu Gln Leu Ser Lys Val Ile Ser Leu Ile Cys Val Ala Val Trp
            260                 265                 270

Leu Ile Asn Ile Gly His Phe Asn Asp Pro Val His Gly Gly Ser Trp
        275                 280                 285

Phe Arg Gly Ala Ile Tyr Tyr Phe Lys Ile Ala Val Ala Leu Ala Val
    290                 295                 300

Ala Ala Ile Pro Glu Gly Leu Pro Ala Val Ile Thr Thr Cys Leu Ala
305                 310                 315                 320

Leu Gly Thr Arg Arg Met Ala Lys Lys Asn Ala Ile Val Arg Ser Leu
                325                 330                 335

Pro Ser Val Glu Thr Leu Gly Cys Thr Ser Val Ile Cys Ser Asp Lys
            340                 345                 350

Thr Gly Thr Leu Thr Thr Asn Gln Met Ser Val Cys Lys Met Phe Ile
        355                 360                 365

Ile Asp Lys Val Asp Gly Asp Val Cys Ser Leu Asn Glu Phe Ser Ile
    370                 375                 380

Thr Gly Ser Thr Tyr Ala Pro Glu Gly Glu Val Leu Lys Asn Asp Lys
385                 390                 395                 400

Pro Val Arg Ala Gly Gln Tyr Asp Gly Leu Val Glu Leu Ala Thr Ile
                405                 410                 415

Cys Ala Leu Cys Asn Asp Ser Ser Leu Asp Phe Asn Glu Thr Lys Gly
            420                 425                 430

Val Tyr Glu Lys Val Gly Glu Ala Thr Glu Thr Ala Leu Thr Thr Leu
        435                 440                 445

Val Glu Lys Met Asn Val Phe Asn Thr Glu Val Arg Ser Leu Ser Lys
    450                 455                 460

Val Glu Arg Ala Asn Ala Cys Asn Ser Val Ile Arg Gln Leu Met Lys
465                 470                 475                 480

Lys Glu Phe Thr Leu Glu Phe Ser Arg Asp Arg Lys Ser Met Ser Val
                485                 490                 495

Tyr Cys Ser Pro Ala Lys Ser Ser Arg Ala Ala Val Gly Asn Lys Met
            500                 505                 510

Phe Val Lys Gly Ala Pro Glu Gly Val Ile Asp Arg Cys Asn Tyr Val
        515                 520                 525

Arg Val Gly Thr Thr Arg Val Pro Leu Thr Gly Pro Val Lys Glu Lys
    530                 535                 540

Ile Met Ser Val Ile Lys Glu Trp Gly Thr Gly Arg Asp Thr Leu Arg
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545                 550                 555                 560

Cys Leu Ala Leu Ala Thr Arg Asp Thr Pro Pro Lys Arg Glu Glu Met
                565                 570                 575

Val Leu Asp Asp Ser Ala Lys Phe Met Glu Tyr Glu Met Asp Leu Thr
            580                 585                 590

Phe Val Gly Val Val Gly Met Leu Asp Pro Pro Arg Lys Glu Val Thr
        595                 600                 605

Gly Ser Ile Gln Leu Cys Arg Asp Ala Gly Ile Arg Val Ile Met Ile
    610                 615                 620

Thr Gly Asp Asn Lys Gly Thr Ala Ile Ala Ile Cys Arg Arg Ile Gly
625                 630                 635                 640

Ile Phe Ser Glu Asn Glu Glu Val Thr Asp Arg Ala Tyr Thr Gly Arg
                645                 650                 655

Glu Phe Asp Asp Leu Pro Leu Ala Glu Gln Arg Glu Ala Cys Arg Arg
            660                 665                 670

Ala Cys Cys Phe Ala Arg Val Glu Pro Ser His Lys Ser Lys Ile Val
        675                 680                 685

Glu Tyr Leu Gln Ser Tyr Asp Glu Ile Thr Ala Met Thr Gly Asp Gly
    690                 695                 700

Val Asn Asp Ala Pro Ala Leu Lys Lys Ala Glu Ile Gly Ile Ala Met
705                 710                 715                 720

Gly Ser Gly Thr Ala Val Ala Lys Thr Ala Ser Glu Met Val Leu Ala
                725                 730                 735

Asp Asp Asn Phe Ser Thr Ile Val Ala Ala Val Glu Glu Gly Arg Ala
            740                 745                 750

Ile Tyr Asn Asn Met Lys Gln Phe Ile Arg Tyr Leu Ile Ser Ser Asn
        755                 760                 765

Val Gly Glu Val Val Cys Ile Phe Leu Thr Ala Ala Leu Gly Leu Pro
    770                 775                 780

Glu Ala Leu Ile Pro Val Gln Leu Leu Trp Val Asn Leu Val Thr Asp
785                 790                 795                 800

Gly Leu Pro Ala Thr Ala Leu Gly Phe Asn Pro Pro Asp Leu Asp Ile
                805                 810                 815

Met Asp Arg Pro Pro Arg Ser Pro Lys Glu Pro Leu Ile Ser Gly Trp
            820                 825                 830

Leu Phe Phe Arg Tyr Met Ala Ile Gly Gly Tyr Val Gly Ala Ala Thr
        835                 840                 845

Val Gly Ala Ala Ala Trp Trp Phe Leu Tyr Ala Glu Asp Gly Pro His
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    850                 855                 860

Val Ser Tyr His Gln Leu Thr His Phe Met Gln Cys Thr Glu His Asn
865                 870                 875                 880

Pro Glu Phe Asp Gly Leu Asp Cys Glu Val Phe Glu Ala Pro Glu Pro
                885                 890                 895

Met Thr Met Ala Leu Ser Val Leu Val Thr Ile Glu Met Cys Asn Ala
            900                 905                 910

Leu Asn Ser Leu Ser Glu Asn Gln Ser Leu Leu Arg Met Pro Pro Trp
        915                 920                 925

Val Asn Ile Trp Leu Leu Gly Ser Ile Cys Leu Ser Met Ser Leu His
    930                 935                 940

Phe Leu Ile Leu Tyr Val Asp Pro Leu Pro Met Ile Phe Lys Leu Arg
945                 950                 955                 960

Ala Leu Asp Phe Thr Gln Trp Leu Met Val Leu Lys Ile Ser Leu Pro
                965                 970                 975

Val Ile Gly Leu Asp Glu Leu Leu Lys Phe Ile Ala Arg Asn Tyr Leu
            980                 985                 990

Glu Gly
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<210> 15
<211> 998
<212> PRT
<213> Mus musculus

<400> 15

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Met Glu Asn Ala His Thr Lys Thr Val Glu Glu Val Leu Gly His Phe
  1               5                  10                  15

Gly Val Asn Glu Ser Thr Gly Leu Ser Leu Glu Gln Val Lys Lys Leu
             20                  25                  30

Lys Glu Arg Trp Gly Ser Asn Glu Leu Pro Ala Glu Glu Gly Lys Thr
         35                  40                  45

Leu Leu Glu Leu Val Ile Glu Gln Phe Glu Asp Leu Leu Val Arg Ile
     50                  55                  60

Leu Leu Leu Ala Ala Cys Ile Ser Phe Val Leu Ala Trp Phe Glu Glu
 65                  70                  75                  80

Gly Glu Glu Thr Ile Thr Ala Phe Val Glu Pro Phe Val Ile Leu Leu
                 85                  90                  95

Ile Leu Val Ala Asn Ala Ile Val Gly Val Trp Gln Glu Arg Asn Ala
            100                 105                 110
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Glu Asn Ala Ile Glu Ala Leu Lys Glu Tyr Glu Pro Glu Met Gly Lys
        115                 120                 125

Val Tyr Arg Gln Asp Arg Lys Ser Val Gln Arg Ile Lys Ala Lys Asp
    130                 135                 140

Ile Val Pro Gly Asp Ile Val Glu Ile Ala Val Gly Asp Lys Val Pro
145                 150                 155                 160

Ala Asp Ile Arg Leu Thr Ser Ile Lys Ser Thr Thr Leu Arg Val Asp
                165                 170                 175

Gln Ser Ile Leu Thr Gly Glu Ser Val Ser Val Ile Lys His Thr Asp
            180                 185                 190

Pro Val Pro Asp Pro Arg Ala Val Asn Gln Asp Lys Lys Asn Met Leu
        195                 200                 205

Phe Ser Gly Thr Asn Ile Ala Ala Gly Lys Ala Met Gly Val Val Val
    210                 215                 220

Ala Thr Gly Val Asn Thr Glu Ile Gly Lys Ile Arg Asp Glu Met Val
225                 230                 235                 240

Ala Thr Glu Gln Glu Arg Thr Pro Leu Gln Gln Lys Leu Asp Glu Phe
                245                 250                 255

Gly Glu Gln Leu Ser Lys Val Ile Ser Leu Ile Cys Ile Ala Val Trp
            260                 265                 270

Ile Ile Asn Ile Gly His Phe Asn Asp Pro Val His Gly Gly Ser Trp
        275                 280                 285

Ile Arg Gly Ala Ile Tyr Tyr Phe Lys Ile Ala Val Ala Leu Ala Val
    290                 295                 300

Ala Ala Ile Pro Glu Gly Leu Pro Ala Val Ile Thr Thr Cys Leu Ala
305                 310                 315                 320

Leu Gly Thr Arg Arg Met Ala Lys Lys Asn Ala Ile Val Arg Ser Leu
                325                 330                 335

Pro Ser Val Glu Thr Leu Gly Cys Thr Ser Val Ile Cys Ser Asp Lys
            340                 345                 350

Thr Gly Thr Leu Thr Thr
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